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(19)

(54) IMPROVEMENTS IN OR RELATING TO MOISTURE ABSORBING COMFORT PADS

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to hereby declare the invention, for which we pray that a Patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention is concerned with moisture absorbing comfort pads. Such pads may be used for example as incontinence pads in hospitals, nursing homes, old people's homes and in private houses to assist in the nursing of incontinent persons. The desirable qualities of a moisture absorbing underpad are to absorb the fluid and at the same time to provide a surface in contact with a person which limits or minimises the liability for that person to develop bedsores.

An incontinent person when lying in bed often develops bedsores of the pelvic region because of prolonged contact with urine or fluid faeces. This prolonged contact with fluid causes maceration and excoriation of the skin, as well as producing a high coefficient of friction between the person's skin and his support. If the incontinent person is bedfast (or chairfast) then because of the high degree of friction there is an increased risk that the person will develop deep Decubitis Ulcers.

The desired properties an underpad should exhibit in order to prevent sores and ulcers as well as improving the standard of comfort for the patient are that the said underpad should be large, smooth faced, crease and crumple resistant, and have a low coefficient of friction between its upper surface and the patient, allow some movement between the pad and the bed (or chair), not cause fluid to 'pool' under the perineum, i.e. not cause a high concentration of fluid under the perineum, and be capable of rapidly absorbing fluid whilst leaving the surface of the pad relatively dry. Additionally, it is desirable to have a pad which has a large fluid capacity, helps to distribute the weight of the pelvis, resists tearing, does not induce static charge, is not easily ignited and can be easily laundered.

Disposable underpads used at present exhibit certain of the aforesaid features but in general do not meet the desired requirements sufficiently. A further disadvantage is that of disposal of the underpad after use. Synthetic sheepskins are widely used for the prevention of bedsores but these have the disadvantage of being relatively expensive and not being very efficient at preventing soiling of the incontinent person's main support. Natural sheepskins are not suitable for incontinent persons. The pads of the present invention may also be used as diapers.

It is an object of the present invention to provide an improved moisture absorbing pad. Accordingly, the present invention provides a moisture absorbing pad comprising at least three initially separate layers of material stitched together around their peripheral edges to form a pad, a first layer formed of a yarn having the properties of forming a fabric which is comparatively smooth and has a low coefficient of friction with respect to human skin and at the same time has low moisture absorbing properties, a second layer formed to absorb moisture and to allow moisture to spread freely across the fabric such as a fabric formed of cotton yarn and a third layer of a synthetic foam material which absorbs moisture after first being compressed and then released.

Desirably, the pad is formed of four layers in which the fourth layer in contact with the foamed material is of similar material to the

second layer. Conveniently, the first layer is formed of knitted synthetic yarn such as a nylon or a polyester, the second and fourth layers formed of cotton, or cotton and rayon terry towelling, and the third layer of a porous and flexible and highly resilient foam such as a polyether or polyurethane foam.

In a further modification a fifth layer of a flexible material and wholly impervious to moisture such as a layer of synthetic plastics formed of polythene sheeting is provided adjacent to the fourth layer. The pad may be of any desired shape but will conveniently be rectangular or elliptical.

It is also a feature of the present invention that one end of each of two pads in accordance with the present invention may be stitched together or joined together to form a crotch and their opposite ends secured to form a waistband thus forming a diaper pad to be used by infants and babies or older children and adults requiring diapers.

The pad may also be used (in a small size) inside incontinent briefs, or may be made up as a complete 'open-flat' diaper.

The invention is illustrated by way of example in the drawings accompanying the Provisional Specification in which:—

Figure 1 is a cut away illustration of the underpad according to the invention;

Figure 2 is a particular embodiment having a detachable impermeable backing;

Figures 3, 4 and 5 are various 'conventional' uses of the pad; and

Figure 6 is a particular embodiment in which two pads are joined together so as to form a diaper arrangement.

With reference to the drawings, in particular Figure 1, the pad comprises a first (top) layer 1 of non-absorbent material, eg a knitted polyester or a nylon through which fluids can easily pass. A second layer 2 is formed of absorbent material which is particularly efficient in rapidly absorbing the fluid in a horizontal manner thus dispersing the fluid throughout said layer. A third layer 3 is made of porous, flexible and resilient foam, eg. a polyether or polyurethane foam which forms the main cushioning medium in the pad. A final (bottom) layer 4 also of an absorbent material preferably terry towelling is provided. The pad is formed by stitching together (preferably overlock stitch) around the edges 5 of said layers which are of the same length and breadth. The various layers may also be bonded together by adhesive (or heat) in order to improve both the comfort and the washing characteristics of the pad. The construction of the pad is such that it is possible to launder the pad by conventional means.

The pad is operational in the following manner. When a fluid, say urine, is voided onto the pad by an incontinent person, the said urine passes straight through the top non-absorbent layer 1 which remains relatively dry and onto the second absorbent layer 2 whereat the urine is rapidly absorbed horizontally through the layer. When the incontinent person moves, compressional movements are caused in the foam layer 3 which stimulate absorption into said third layer and thus fluid is removed from the second layer. By such a sequence of events, the uppermost layer is kept relatively dry which keeps friction between the person and pad low as well as being comfortable for the patient. The lower layer 4 is an additional soak up for fluid and because it is so absorbent it is reluctant to allow fluid to pass to the underlying bed sheet.

With reference to Figure 2, a disposable impermeable film 6, of polythene, which is of greater length and breadth than the pad may be placed underneath the pad, i.e. underneath the bottom layer 4 in Figure 1, and then affixed to said pad by overlapping the edges of said impermeable layer over the edges of said pad and attaching said overlap to the top non-absorbent layer 1, by some known means, eg. tape strips 7 carrying adhesive on both sides. Normally, however, it has not been found desirable to use the impermeable film for such an arrangement encourages the fluid to pool and so it is used only when it is absolutely necessary, eg. when nursing staff is scarce. The backing is removed before laundering.

The invention has various applications, some of these being illustrated in Figures 3, 4, 5 and 6. With reference to Figure 3, the pad is layed on the bed in such a manner that the lower face 4 is in contact with the cotton bed sheet; this arrangement would usually only be used for bed sore prevention, (continent persons) or where there is adequate nursing care incontinent people). If soiling of the full size bed sheet is not desired and the attachable impermeable sheet is not used, the pad may be placed onto a cotton or disposable drawsheet, or evenly directed onto an impermeable polythene drawsheet 8. Cleaning of the undersheet is easier in this case for the drawsheet may be dried and cleaned whilst on the bed, thus avoiding the necessity to change the sheets.

If either voidance is excessive or the pads are not changed very often, it is possible, as shown in Figure 5, to use several pads in unison. The particular embodiment shown comprises two pads A and B, with the absorbent faces 4 uppermost lying side by side on a drawsheet C. A third pad 1 is placed with its absorbent face 4 lowermost onto the two aforesaid pads in such a manner that said pad 1 covers said pads A and B equally. Since the towel faces 4 of the three mentioned pads are in contact, fluid is easily

communicated to all pads. The particular embodiment shown in Figure 6 is useful for active incontinent bed patients and persons liable to void in an upwards direction. This arrangement comprises two pads D and E which are taped together with plastic strappings at the three points 10, 11 and 12 shown. The pads are joined together with the absorbent faces 4 facing one another. Such an arrangement appears analogous to a diaper, the legs of the patient protruding through the apertures defined by the fixing straps 10, 11 and 11, 12, the torso of the patient protruding out of the aperture defined by straps 10, 12.

WHAT WE CLAIM IS:—

1. A moisture absorbing comfort pad comprising at least three initially separate layers of material stitched together around their peripheral edges to form a pad, a first layer formed of a yarn having the properties of forming a fabric which is comparatively smooth and has a low coefficient of friction with respect to human skin and at the same time has low moisture absorbing properties, a second layer formed to absorb moisture and to allow moisture to spread freely across the fabric such as a fabric formed of cotton yarn, and a third layer of a synthetic foam material which absorbs moisture after first being compressed and then released.

2. A pad according to claim 1 having four layers in which the fourth layer is in contact with the foamed material forming the third layer and is itself formed of a material similar to the second layer.

3. A pad according to claim 1 or claim 2 in which the first layer is formed of knitted synthetic yarn.

4. A pad according to claim 3 in which said yarn is a nylon.

5. A pad according to claim 3 in which said yarn is a polyester.

6. A pad according to any of the preceding claims in which the second layer is formed of cotton, or cotton and rayon terry towelling.

7. A pad according to any of claims 2—5 in which the fourth layer is formed of cotton, or cotton and rayon terry towelling.

8. A pad according to any of the preceding claims in which the third layer is formed of a porous, flexible and highly resilient foam material.

9. A pad according to claim 8 in which the resilient foam material is polyether or polyurethane foam.

10. A pad according to any of the claims 2—9 having a fifth layer of flexible material wholly impervious to moisture.

11. A pad according to claim 10 in which said fifth layer is formed of synthetic plastics material such as polythene sheeting and is provided adjacent to the fourth layer.

12. A pad according to any of the preceding claims which is of rectangular or elliptical shape.

13. An incontinence device formed by stitching together substantially identical pads made in accordance with any of the preceding claims, said pads being stitched together at one end to form a crotch and secured at their opposite ends to form a waistband for securing to a child or an adult.

11. A moisture absorbing comfort pad substantially as described and illustrated herein with reference to Figures 1—6 of the drawings accompanying the Provisional Specification.

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Chartered Patent Agents.

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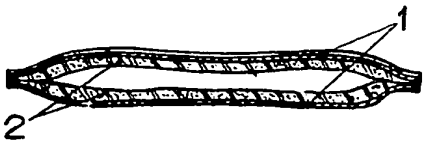

FIG 1d

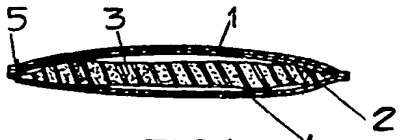

FIG 1

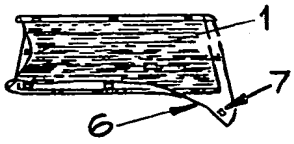

FIG 2

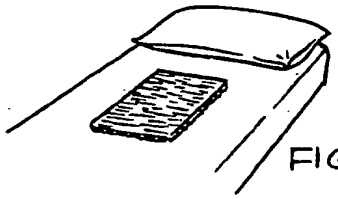

FIG 3

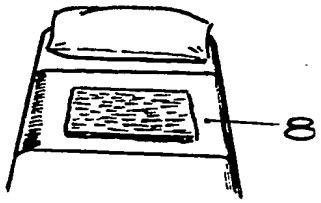

FIG 4

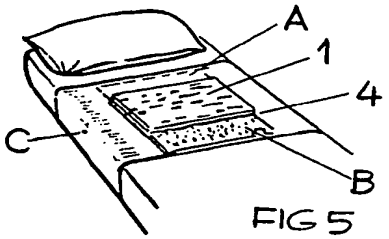

FIG 5

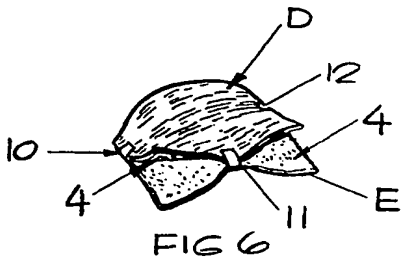

FIG 6